

## REMARKS

The Office Action mailed June 22, 2005 objected to claims 65-67, 75-77, 92-94, and 101-103; objected to the disclosure; rejected claims 85-113 under 35 U.S.C. § 101; rejected claims 58-64, 71-74, 81-87, 89-91, 97-100, 106, and 107 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,313,568 ("*Wallace*"); and rejected claims 65-70, 75-80, 88, 92-96, and 101-105 under 35 U.S.C. § 103(a) as obvious over *Wallace* in view of European Application No. 95938509.7 ("*Wrigley*").

By this Reply, Applicant has amended the disclosure to include another copy of the Abstract; amended the specification according to Examiner's suggested order of sections; cancelled claims 58-113; and added new claims 114-173. No new matter has been added.

### I. Response to Objections

#### A. *Objection To Claims*

Regarding the objection to claims 66, 76, 93 and 102, and claims depending therefrom, for grammatical informalities, Applicant respectfully traverses Examiner's assertion of grammatical error. By this amendment, claims 66, 76, 93 and 102, and claims depending therefrom, have been cancelled thereby rendering the objection moot. Newly added claims 122, 132, 150, and 159 recite "... to define an environment which comprises a larger number of pathways ... than are defined ...." Applicant submits that the grammatical form present in newly added claims 122, 132, 150, and 159 is correct for at least the reason that the phrase "larger number of pathways" agrees with the phrase "than are defined...."

Regarding the objection to claims 65, 75, 92 and 101, and claims depending therefrom, for grammatical informalities, claims 65, 75, 92 and 101, and claims

depending therefrom, have been cancelled thereby rendering the objection moot.

Newly added claims 121, 131, 149, and 158 have been drafted in the grammatical form suggested by Examiner.

B. *Objection to Disclosure*

Regarding the objection to the disclosure, Applicant has attached a copy of the disclosure Abstract labeled "ABSTRACT" on a clean sheet.

Further, Applicant has amended the specification according to Examiner's suggested section order. Therefore, Applicant respectfully requests withdrawal of the objections to the disclosure.

II. Response to Rejections

A. *Rejection of Claims 85-113 Under 35 U.S.C. § 101*

Regarding the rejection of claims 85-113 under 35 U.S.C. § 101 as being directed to non-statutory subject matter, claims 85-113 have been cancelled, thereby rendering the rejection of claims 85-113 under 35 U.S.C. § 101 moot. Newly added independent claim 142 recites, among other things,

A method of processing data in an electronic processing apparatus to generate data defining energy received by an energy receiver within a three dimensional scene... comprising... calculating data defining the propagation of energy along said predetermined pathways in accordance with said objects and energy sources and the intersections determined in said determining step; storing, in a data store, said data defining the propagation of energy along said predetermined pathways...

The method is directed to processing data in an electronic processing apparatus for the purpose of generating data defining energy received by an energy receiver within a three dimensional scene. The stored data is a tangible result of the method and is useful as it can be used to determine the energy received by any energy receiver that is

subsequently positioned, at any position within the three dimensional environment. This output is also clearly concrete as it is stored in a data store. For at least this reason, Applicant submits that claim 142, and claims depending therefrom, are directed to statutory subject matter.

Further, newly added independent claim 154 recites, among other things, "... determining intersections between said predetermined pathways and said objects and energy sources within said three dimensional environment; and storing, in a data store, data representative of the three dimensional scene, including data identifying said determined intersections." The useful, concrete and tangible result is the data that is stored in the data store that is representative of the three dimensional scene, which includes the data identifying the determined intersections. Knowledge of such intersections is useful for various purposes. In particular, the information can be used to identify the propagation of energy within the three dimensional scene, in accordance with the method of claim 142. It can also be used to identify which objects are in front of other objects within the scene from any given position within the scene. For at least this reason, Applicant submits that newly added independent claim 154, and claims depending therefrom, are directed to statutory subject matter.

Finally, newly added independent claim 164 recites, among other things, "A method of processing data in an electronic processing apparatus... comprising ... calculating and outputting a value indicative of energy received by said energy receiver in accordance with the energy propagated along the identified predetermined pathways which intersect said energy receiver." The method of claim 164 is also directed to a method of processing data in an electronic processing apparatus. The useful, concrete

and tangible result of the method is the value indicative of the energy received by the energy receiver. For at least this reason, Applicant submits that newly added independent claim 164, and claims depending therefrom, are directed to statutory subject matter.

B. *Rejection of Claims 58-64, 71-74, 81-87, 89-91, 97-100, 106, and 107 Under 35 U.S.C. § 102(b)*

Applicant respectfully traverses the rejection of claims 58-64, 71-74, 81-87, 89-91, 97-100, 106, and 107 under 35 U.S.C. § 102(b) as being anticipated by *Wallace*. By this amendment, claims 58-64, 71-74, 81-87, 89-91, 97-100, 106, and 107 have been cancelled, thereby rendering the rejection of claims 58-64, 71-74, 81-87, 89-91, 97-100, 106, and 107 under 35 U.S.C. § 102(b) moot.

Applicant respectfully submits that newly added independent claims 114, 127, and 137, and claims depending therefrom, are allowable for at least the reason that *Wallace* does not teach or suggest every claim element. For example, independent claims 114, 127, and 137 recite, among other things, "... a second definer operable to define a plurality of predetermined discrete energy propagation pathways ... which pathways are independent of any ... object or energy source...." *Wallace* does not teach or suggest at least this claim element. *Wallace* discusses two prior art techniques for global illumination of a scene. The first is a ray tracing technique in which rays are fired from the viewpoint (energy receiver) into the scene and a radiosity technique which uses a "hemi-cube" algorithm in which rays are "shot out" from the light source in a predefined uniform set of directions. In both of these techniques and in the improved technique that *Wallace* describes, rays (predetermined energy propagation pathways) are "shot out" from a viewpoint or from an object or light source within the 3D scene. It

is clear, therefore, that *Wallace* does not disclose or suggest a plurality of predetermined discrete energy propagation pathways in a plurality of directions within the defined three-dimensional environment, which pathways are independent of any defined energy receiver, object or energy source. Additionally, the standard ray tracing technique described in columns 1 and 2 of *Wallace*, would not identify which of the predetermined pathways intersect with the energy receiver. This is because, in ray tracing, the energy receiver is the viewpoint from which the rays are cast. The only intersections that are calculated in standard ray tracing techniques are those between the objects in the scene and the rays cast from the viewpoint. Therefore, independent claims 114, 127, and 137, and claims depending therefrom, should be allowable.

Applicant respectfully submits that newly added independent claims 142, 154, and 164, and claims depending therefrom, are allowable for at least the reason that *Wallace* does not teach or suggest every claim element. For example, independent claims 142, 154, and 164 recite, among other things, "... a plurality of pre-determined discrete energy propagation pathways... which pathways are independent of any defined energy receiver...." *Wallace* does not teach or suggest at least this claim element. Therefore, independent claims 142, 154, and 164, and claims depending therefrom, should be allowable.

C. *Rejection of Claims 65-70, 75-80, 88, 92-96, and 101-105 Under 35 U.S.C. § 103(a)*

Applicant respectfully traverses the rejection of claims 65-70, 75-80, 88, 92-96, and 101-105 under 35 U.S.C. § 103(a). By this amendment, claims 65-70, 75-80, 88, 92-96, and 101-105 have been cancelled, thereby rendering the rejection of claims 65-70, 75-80, 88, 92-96, and 101-105 under 35 U.S.C. § 103(a) moot.

Applicant respectfully submits that the newly added dependent claims 121-126, 131-136, 145, 149-153, 158-161, and 163, are allowable at least by reason of their dependence from allowable independent base claims 114, 127, 137, 142, and 154. *Wrigley* does not cure the defects discussed above with regard to *Wallace*. Nor has the Examiner presented support in the prior art for the alleged motivation to combine *Wallace* and *Wrigley*. Therefore, newly added dependent claims 121-126, 131-136, 145, 149-153, 158-161, and 163, should be allowable.

For at least the reasons set forth above, newly added claims 114-173 should be allowable. Therefore, Applicant respectfully requests the reconsideration of this application, the withdrawal of the outstanding objections, and the timely allowance of claims 114-173.

Applicant respectfully submits that the Office Action contains numerous assertions concerning the related art and the claims. Regardless of whether those assertions are addressed specifically herein, Applicant respectfully declines to automatically subscribe to them.

In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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GARRETT & DUNNER, L.L.P.

Dated: October 24, 2005

By: 

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**Attachments:      One Abstract**